ORDER NO. HAD84092902A4

Service Manual

Amplifier

Stereo Integrated Amplifier

SU-Z850

Color

(S) · · · · Silver type
(K) · · · · Black type

Color	Area
(S) (K)	[PC] · · · · European Audio Club

Please use this manual together with the service manual for Model No. SU-Z800, Order No. HAD84082871C1.

SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

1 kHz continuous power output
both channels driven 2 × 100W (8Ω)
20 Hz~20 kHz continuous power output
both channels driven 2 × 90W (8Ω)
Total harmonic distortion
rated power at 20 Hz~20 kHz 0.02% (8Ω)
half power at 20 Hz~20 kHz 0.01% (8Ω)
half power at 1 kHz 0.003% (8Ω)
−26 dB power at 1 kHz 0.007% (8Ω)
50 mW power at 1 kHz 0.007% (8Ω)
Intermodulation distortion
rated power at 250 Hz: 8 kHz=4:1, 8Ω 0.02%
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω 0.02%
Power bandwidth
both channels driven, −3 dB 5 Hz~25 kHz (8Ω, 0.02%)
Residual hum and noise 0.8 mV
Damping factor 60 (8Ω)
Input sensitivity and impedance
PHONO 2.5 mV/47kΩ
TUNER, CD/VIDEO/AUX, TAPE 1, 2/EXT 150 mV/22kΩ
PHONO maximum input voltage (1 kHz, RMS) 150 mV
S/N
rated power (8Ω)
PHONO 75 dB (IHF, A: 81 dB)
TUNER, CD/VIDEO/AUX, TAPE 1, 2/EXT 86 dB (IHF, A: 97 dB)
−26 dB power (8Ω)
PHONO 63 dB
TUNER, CD/VIDEO/AUX, TAPE 1, 2/EXT 65 dB
50 mW power (8Ω)
PHONO 61 dB
TUNER, CD/VIDEO/AUX, TAPE 1, 2/EXT 62 dB

Frequency response
PHONO RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
TUNER, CD/VIDEO/AUX, TAPE 1, 2/EXT 5 Hz~100 kHz (−3 dB)
Tone controls
BASS 50 Hz, +10 dB~ −10 dB
TREBLE 20 kHz, +10 dB~ −10 dB
Low-cut filter 30 Hz, −6 dB/oct.
High-cut filter 7 kHz, −6 dB/oct.
Loudness control (volume at −30 dB) 50 Hz, +9 dB
Output voltage and impedance
REC OUT 150 mV
Channel balance, CD/VIDEO/AUX 250 Hz~6,300 Hz ±1 dB
Channel separation, CD/VIDEO/AUX 1 kHz 55 dB
Headphones output level and impedance 620 mV/330Ω
Load impedance
MAIN or REMOTE 4Ω~16Ω
MAIN and REMOTE 8Ω~16Ω

■ GENERAL

Power consumption 458W
Power supply AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W×H×D) 430 × 120 × 353 mm (16-15/16" × 4-23/32" × 13-31/32")
Weight 9.3 kg (20.6 lb.)

Note:
Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Specifications are subject to change without notice for further improvement.

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

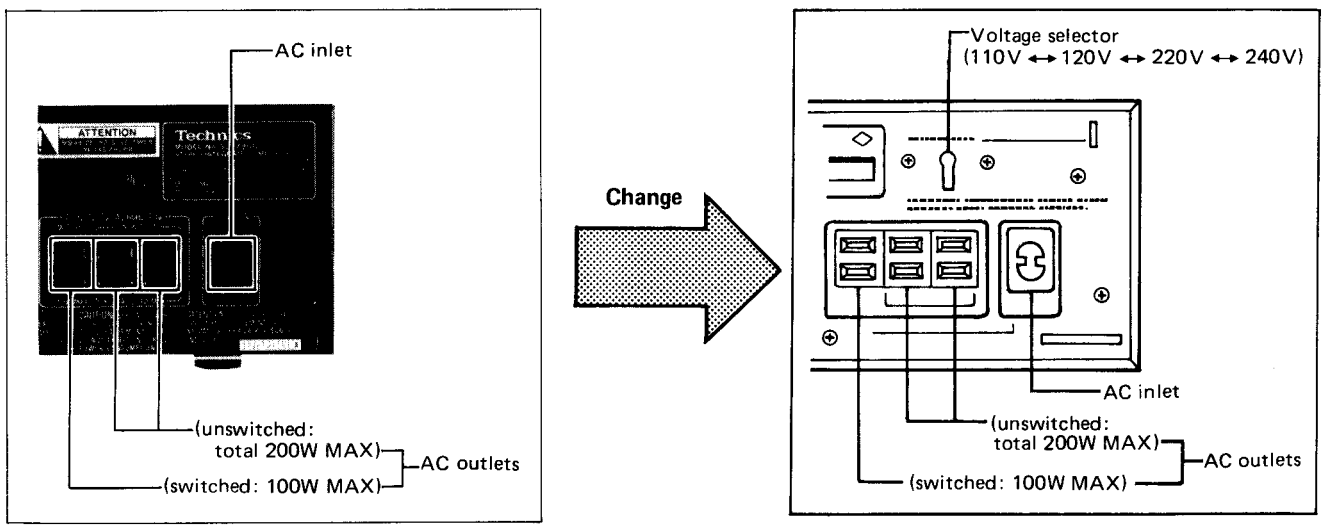
■ BEFORE REPAIR AND ADJUSTMENT

1. Turn off the power, Discharge both power supply capacitors (C503, C504, 12000μF) through a 10Ω, 5W resistor to ground. Do not short between C503 and C504. It may damage the capacitors.
2. After completion of repair, slowly apply the primary voltage by using a variac to avoid over current. Current consumption at 60Hz/50Hz in no signal mode should by shown below with respect to supply voltage 110V/120V/ 220V/ 240V.

Power supply voltage		AC110V	AC120V	AC220V	AC240V
Consumed current	50Hz	190 ~ 580mA	170 ~ 520mA	90 ~ 280mA	80 ~ 270mA
	60Hz	310 ~ 650mA	290 ~ 590mA	210 ~ 350mA	200 ~ 340mA

■ LOCATION OF CONTROLS

• Change in rear panel



■ REPLACEMENT PARTS LIST

• Change in replacement parts list

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ – marked parts are used for black only, while ○ – marked parts are for silver type only.
4. Part other than Ⓚ – and ○ – marked are used for both black and silver type.
5. The " Ⓢ " mark is service standard parts and may differ from production parts.

Ref. No.	Change of Parts No. SU-Z800 [M] → SU-Z850 [PC]		Part Name & Description	Pcs/Set	Remarks
TRANSFORMER					
T501	SLT5P236	SLT5P238	Power Source	1	⚠
FUSES					
F1	XBA1F50N14	XBA2C40TRO	250V, T4A	1	⚠
F2	Addition	XBA2C20TRO	250V, T2A	1	⚠
SWITCH					
S9	Addition	ESE37219	Voltage selector	1	⚠
RESISTOR					
R448	ERD2FCG470	ERD25FJ470	Carbon, ¼W, 47Ω	1	Ⓢ
CABINET and CHASSIS PARTS					
2	SGWUZ800-KM	SGWUZ850-SQ	Front Panel Ass'y	1	○
		SGWUZ850-KQ	Front Panel Ass'y	1	Ⓚ
5	SGXUZ800-KM	SGXUZ850-SQ1	Case	1	
6	SGU420-1	SGU420-7	Transparent Cover	1	
7	SKC1130BB1	SKC1130S1	Cabinet	1	○
		SKC1130BB1	Cabinet	1	Ⓚ

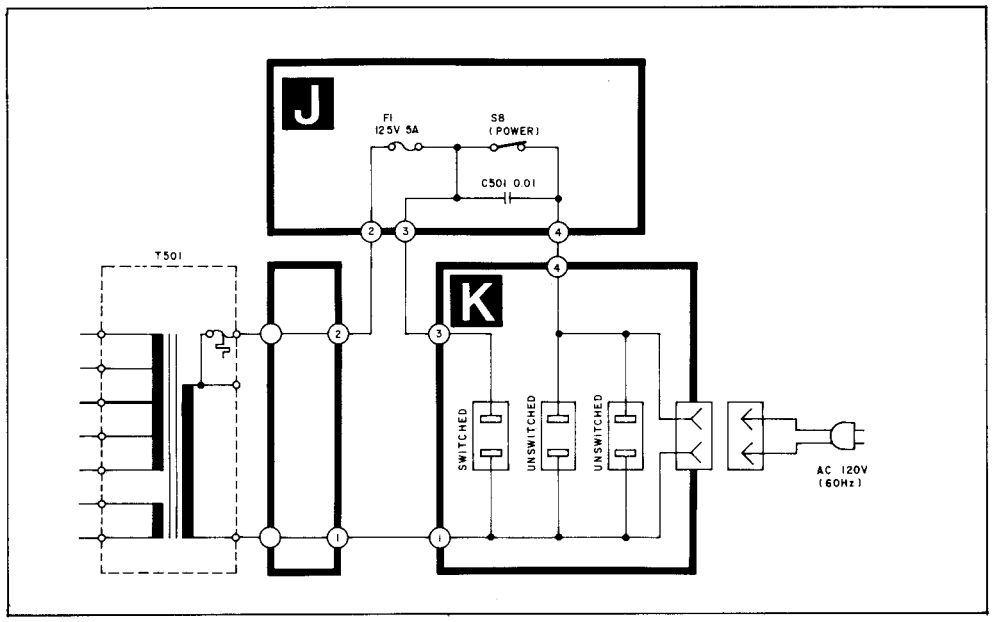
Ref. No.	Change of Parts No. SU-Z800 [M] → SU-Z850 [PC]		Part Name & Description	Pcs/Set	Remarks
CABINET and CHASSIS PARTS					
12	SGXUZ600-KM1	SGXUZ850-SQ2	Ornament	1	○
		SGXUZ850-KQ2	Ornament	1	Ⓚ
35	SGPUZ800-KM	SGPUZ850-SQ	Rear Panel Ass'y	1	
38	SJT345	SJT347	Holder, Fuse	4	
SCREW					
N4	SNE2095-5	SNE2095-4	Cabinet	4	○
		SNE2095-5	Cabinet	4	Ⓚ
ACCESSORIES					
A1	SJA170	SJA168	AC Cord	1	⚠
A2	SQF12201	SQF12221	Instruction Book	1	
A3	Addition	SJP9215	Plug	1	⚠
PACKING PART					
P4	SPG4974	SPG5074	Carton Box	1	

■ SCHEMATIC DIAGRAM

• Change in power supply

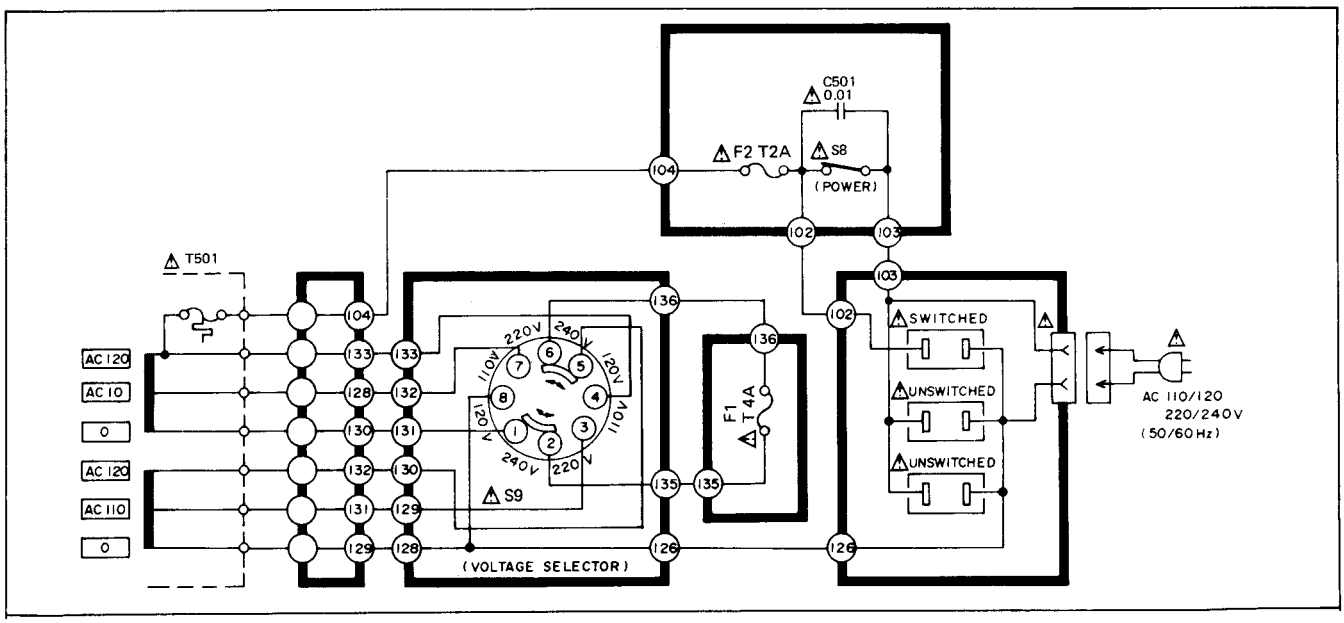
Important safety notice:
Components identified by △ mark have special characteristics important for safety.
When replacing any of these components use only manufacturer's specified parts.

For [M] area



Change

For [PC] area



■ REPLACEMENT PARTS LIST

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ – marked parts are used for black only, while ○ – marked parts are for silver type only.
4. Part other than Ⓚ– and ○ – marked are used for both black and silver type.
5. The " Ⓢ " mark is service standard parts and may differ from production parts.
6. The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS		
IC1	SVINJM2043SE	Equalizer
IC201	SVINJM4560DD	Tone Amp.
IC401	AN7062	Voltage Amp.
IC701	SVITA7317P	Muting & Protection
TRANSISTORS		
Q401, 402, 409, 410	2SA1123-R	Voltage Amp., Pre Drive
Q403, 404, 704, 705	2SC1685-QNC	Bias Control, Hold, Power ON-OFF Detector
Q405~408, 701, 702	2SC2631-R	Regulator, Pre Drive, Over Load Detector
Q411, 412	2SC2592-R	Drive
Q413, 414	2SA1112-R	Drive
Q415, 416	2SC3182-R	Power Amp.
Q417, 418	2SA1265-R	Power Amp.
Q601, 703	2SA1015Y	Power ON-OFF Detector, Hold
DIODES		
D401, 402	MA182	Bias
D411	MA4062-M	6.2V, Zener
D501 ⚠	SVDS10VB20F	Rectifier
D502	MA2150B	15V, Zener
D503, 606	SVDMZ316A	16V, Zener
D601~603	LN240CP	L.E.D.
D604, 605	LN440YCP	L.E.D.
D701~705 Ⓢ	MA162A	Switching
D706	MA165	Switching
D707	MA4240M	24V, Zener
COILS		
L401, 402	SLQY18G-10	Choke
TRANSFORMER		
T501 ⚠	SLT5P238	Power Source
VARIABLE RESISTORS		
VR101	EWAQA8X05B54	Volume, 50kΩ (B)
VR102	EWHF5A20G15	Balance, 100kΩ (G)
VR201, 202	EWCS6A020C15	Tone Control, 100kΩ (C)
VR401, 402	EVNK6AA00B52	Icq Adj., 500Ω (B)
THERMISTERS		
TH401, 402	ERTD2ZHL103S	10kΩ
RELAY		
RLY701 ⚠	SSY126	Speaker Protection
COMPONENT COMBINATIONS		
Z401, 402 ⚠	ERF3GBKR22N	0.22Ω (x2)
LAMP		
PL601 ⚠	XAMS6Q8C	Power Ind.
FUSES		
F1 ⚠	XBA2C40TRO	250V, T4A
F2 ⚠	XBA2C20TRO	250V, T2A
SWITCHES		
S1	SSH3074	Input Selector
S2	SSH2084	Tape Monitor
S3	SSH1145	Loudness
S4, 5	SSH2085	Filter
S6 ⚠	SSH1157	Impedance
S7	SSH2086	Speaker Selector
S8 ⚠	SSH1109	Power Source
S9 ⚠	ESE37219	Voltage selector

Ref. No.	Part No.	Part Name & Description
CABINET and CHASSIS PARTS		
1	SBN1153	Knob, Tone Control, Balance (3)
2 ○	SGWUZ850–SQ	Front Panel, Ass'y (1)
2 Ⓚ	SGWUZ850–KQ	Front Panel, Ass'y (1)
3	SMZ317-1	Reflector Plate (1)
4	SMX856	Insulation Plate (1)
5 ○	SGXUZ850–SQ1	Case (1)
6	SGU420–7	Transparent Cover (1)
7 ○	SKC1130S1	Cabinet (1)
7 Ⓚ	SKC1130BB1	Cabinet (1)
8	SBC666	Button, Power Switch (1)
9	SHW47L30	Spacer, Button (4)
10	SBC439	Button, Speaker, Filter (4)
11	SBDUZ600-KM	Button, Volume (1)
12 ○	SGXUZ600–SE1	Ornament, Volume Knob (1)
12 Ⓚ	SGXUZ600–KM1	Ornament, Volume Knob (1)
13	SBC662D	Button, (Tape 1) (1)
14	SBC662E	Button, (Tape 2) (1)
15	SBC662F	Button, (Aux) (1)
16	SBC662G	Button, (Tuner) (1)
17	SBC662H	Button, (Phono) (1)
18	SUB199	Connection Rod, Button (5)
19	SKU8990-3	Bottom Board (1)
20	SKL249	Foot (4)
21	SUW1995-3	Bracket (1)
22	SBC571–4T	Button, Loudness (1)
23	SMN1847	Bracket (1)
24	SMP378	Case, L.E.D. (1)
25	SHG6309–1	Rubber, Power Transformer (2)
26	SUW2083	Bracket, Power Transistor 1)
27	SMX767	Spacer, Power Transistor (2)
28 ⚠	SJS9231B	Socket, AC Inlet (1)
29 ⚠	SJS9328B	Socket, AC Outlet (1)
30	SML107-9	Bracket, Power Transformer (1)
31	SJF4815-1	Terminal Board, Speaker (1)
32	SJF3057N	Terminal Board (1)
33	SBC165	Button, Impedance Selector Switch (1)
34	SJF3059-15N	Terminal Board (1)
35	SGPUZ850–SQ	Rear Panel (1)
36	SJS9231A	Socket Cover, AC Inlet (1)
37	SJS9328A	Socket Cover, AC Outlet (1)
38	SJT347	Holder, Fuse (2)

Ref. No.	Part No.	Part Name & Description
39	SJJ63B	Jack, Headphones (1)
40	SJS5707	Socket (1)
41	SHR301	Clamper (5)
SCREWS		
N1	XTBS3+8BFZ1	Tapping with Detent, ⊕ 3 x 8 (21)
N2	XTB3+8G	Tapping, ⊕ 3 x 8 (4)
N3	XSN3+6S	⊕ 3 x 6 (7)
N4 ○	SNE2095–4	Tapping (4)
N4 Ⓚ	SNE2095–5	Tapping (4)
N5	XTW3+8J	Tapping, ⊕ 3 x 8 (3)
N6	XTW3+10H	Tapping, ⊕ 3 x 10 (4)
N7	XTB4+10F	Tapping, ⊕ 4 x 10 (4)
N8	XSN3+10S	⊕ 3 x 10 (1)
N9	XTW3+8H	Tapping, ⊕ 3 x 8 (4)
N10	XTBS3+8BFYR1	Tapping with Detent, ⊕ 3 x 8 (4)
N11	XTS3+8B	Tapping, ⊕ 3 x 8 (1)
WASHER		
N20	XWA3B	Spring, ϕ3 (8)
NUTS		
N30	XNS12	ϕ12 (1)
N31	SNE4021	(3)
ACCESSORIES		
A1 ⚠	SJA168	AC Cord (1)
A2	SQF12221	Instruction Book (1)
A3 ⚠	SJP9215	Plug Adaptor (1)
PACKING PARTS		
P1	SPP723	Polyethylene Bag (1)
P2	SPS3023-4	Pad, Left Side (1)
P3	SPS3025-2	Pad, Right Side (1)
P4	SPG5074	Carton Box (1)

Printed in Japan
840900550 Ⓚ SH/TN

ORDER NO. HAD84082871C1

Service Manual

Amplifier

Stereo Integrated Amplifier

SU-Z800

Color

(K) . . . . Black Type

Color	Area
(K)	[M] . . . U.S.A.

System

SC-7130E, SC-7140E
SC-7150, SC-7160E
SC-7170E

SPECIFICATIONS

■ AMPLIFIER SECTION

Rated minimum sine wave RMS power output
20 Hz~20 kHz both channels driven
0.02% total harmonic distortion
100 W per channel (8 ohms)

1 kHz continuous power output
both channels driven
0.02% total harmonic distortion
105 W per channel (8 ohms)

Dynamic headroom 0.8 dB (8 ohms)

Total harmonic distortion
half power at 1 kHz 0.005% (8 ohms)

SMPTE intermoduration distortion
0.02% (8 ohms)

Frequency response
PHONO RIAA standard curve ±0.8 dB
TUNER, CD/VIDEO/AUX, TAPE 1, TAPE 2/EXT 5 Hz~100 kHz, −3 dB

Input sensitivity
PHONO 0.3 mV (2.5 mV, IHF '66)
TUNER, CD/VIDEO/AUX, TAPE 1, TAPE 2/EXT 17 mV (150 mV, IHF '66)

S/N (IHF, A)
PHONO 76 dB (82 dB, IHF '66)
TUNER, CD/VIDEO/AUX, TAPE 1, TAPE 2/EXT 80 dB (97 dB, IHF '66)

Maximum input voltage
PHONO 140 mV (150 mV, 1 kHz)

Input impedance
PHONO 47 kilohms
TUNER, CD/VIDEO/AUX, TAPE 1, TAPE 2/EXT 22 kilohms

Tone controls
BASS 50 Hz, +10 dB~ −10 dB
TREBLE 20 kHz, +10 dB~ −10 dB
Low filter 30 Hz, −6 dB/oct.
High filter 7 kHz, −6 dB/oct.

Loudness control (volume at −30 dB)
50 Hz, +9 dB

Output voltage
TAPE 1, TAPE 2/EXT (REC OUT) 150 mV

Low frequency damping factor 60 (8 ohms)

Load impedance
MAIN or REMOTE 4~16 ohms
MAIN and REMOTE 8~16 ohms

■ GENERAL

Power consumption 303 W, 388 VA
Power supply AC 120V, 60 Hz
Dimensions (W×H×D) 430 × 120 × 355 mm (16-15/16" × 4-23/32" × 13-31/32")
Weight 9.4 kg (20.7 lb.)

Note:
Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system)

Specifications are subject to change without notice for further improvement.
Weight and dimensions shown are approximate.

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50 Meadowland Parkway,
Secaucus. New Jersey 07094

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Honolulu, Hawaii 96808-0774

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Carolina, Puerto Rico 00630

Technics

SU-Z800

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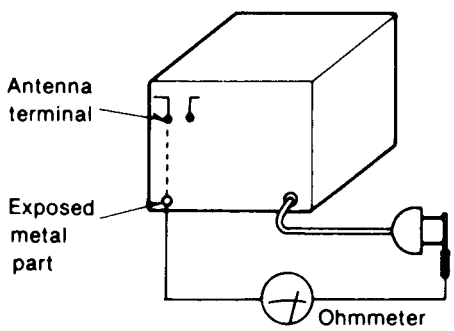
■ SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

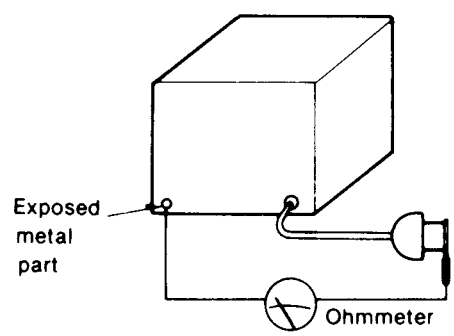
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ



(Fig. B)

Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ SELECTING THE CORRECT SPEAKER IMPEDANCE

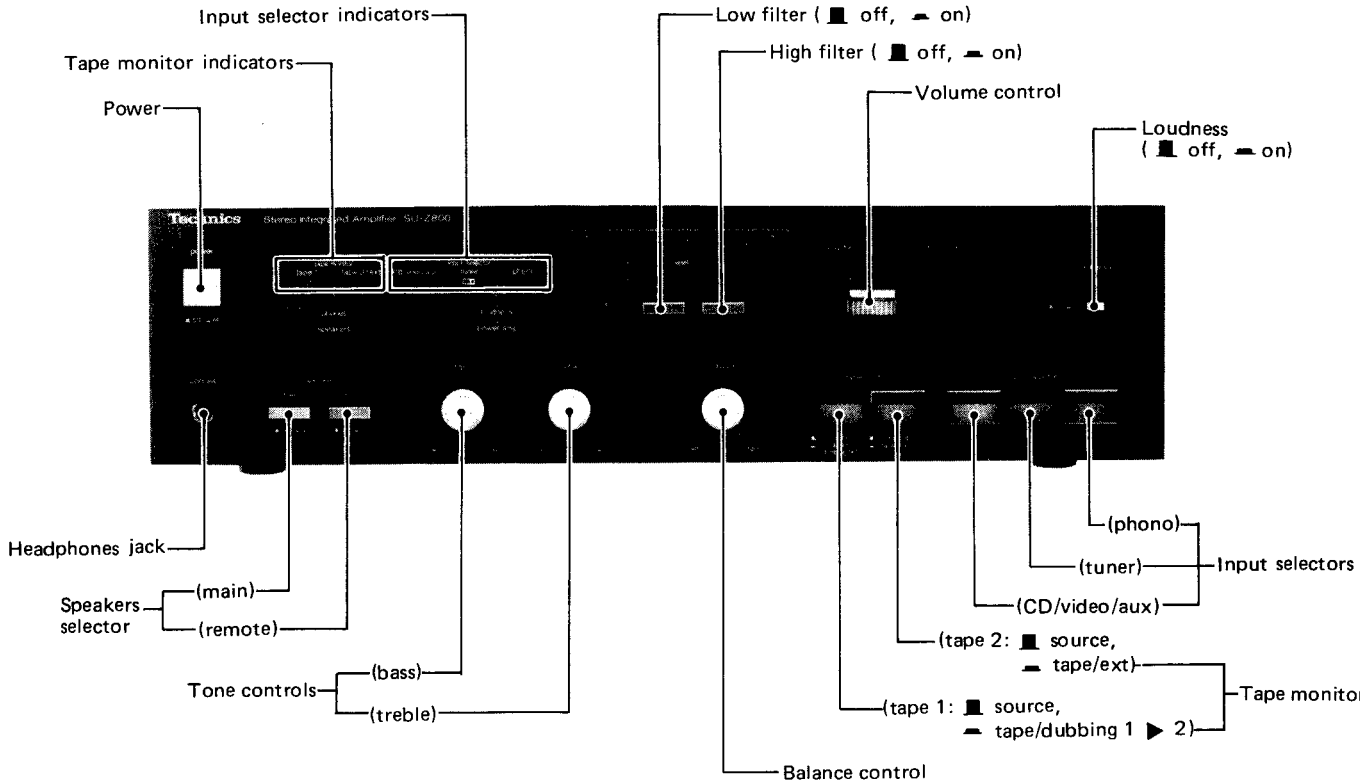
1. When one pair of speaker systems is being used, connected to the MAIN or REMOTE terminals, set the speaker impedance selector to the range, "4~6Ω" or "8~16Ω", which matches the impedance of the speaker systems being used.
2. When two pairs of speaker systems are being used, connected to the MAIN and REMOTE terminals:
   1) If the impedance of both systems is 16 ohms, set the speaker impedance selector to "16Ω".
   2) If the impedance of both systems is 8 ohms, or one is 8 ohms and the other is 16 ohms, set the speaker impedance selector to "8Ω".

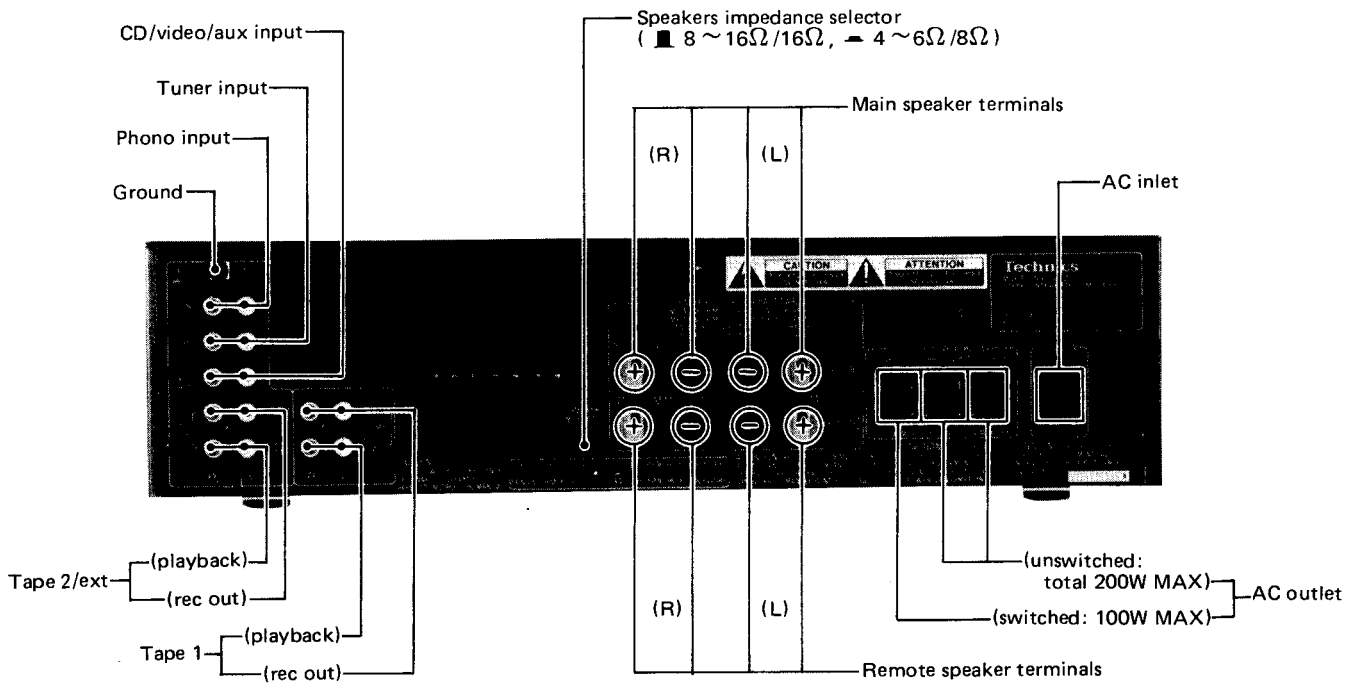
Note that, if 2 pairs of speaker systems are used at the same time, determine the composite impedance as described below.

$$R = \frac{R_1 \times R_2}{R_1 + R_2}$$

Where:
R = total impedance
R_1 = impedance of speaker systems connected to "MAIN" terminals
R_2 = impedance of speaker systems connected to "REMOTE" terminals

■ LOCATION OF CONTROLS





* Phono input capacitance is about 150pF.

■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.

If this occurs, follow the procedure outlines below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

Note

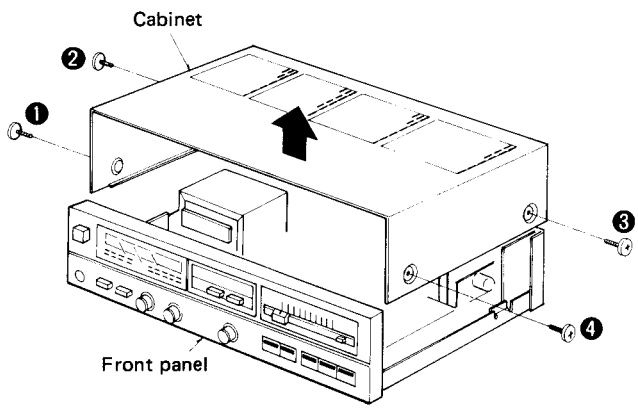
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ BEFORE REPAIR AND ADJUSTMENT

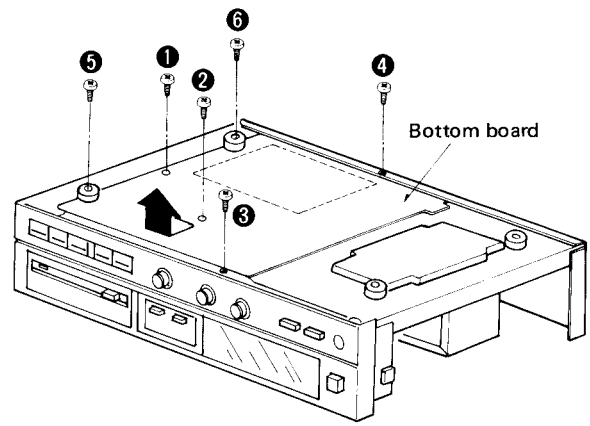
1. Turn off the power supply and short-circuit of power supply capacitors (C503 and C504, 12000μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage. Do not short between C503 and C504 by screwdriver. It may damage the component.
2. Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 120V, 60Hz in no-signal mode is 290 ~ 590mA.

■ DISASSEMBLY INSTRUCTIONS

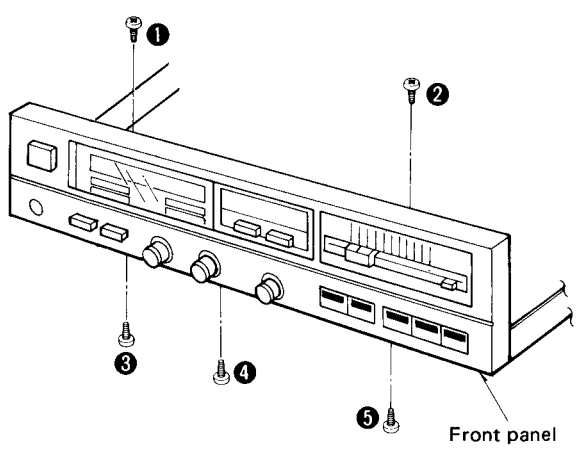
Ref. No. 1	How to remove the cabinet
Procedure 1	• Remove the 4 setscrews .(❶ ~ ❹)



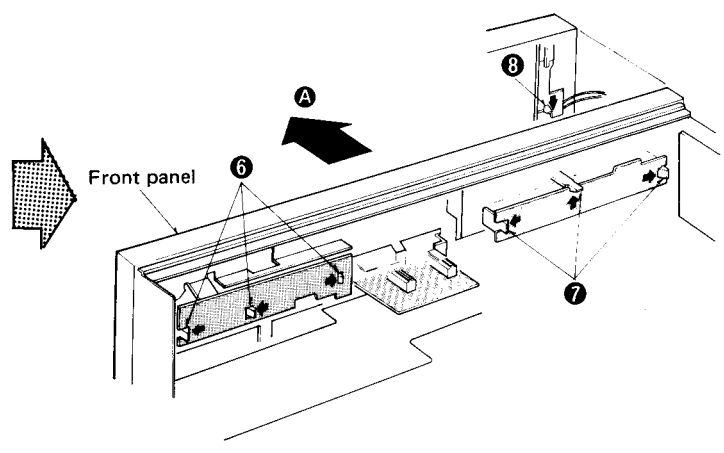
Ref. No. 2	How to remove the bottom board
Procedure 1 →2	• Remove the 6 setscrews. (❶ ~ ❻)



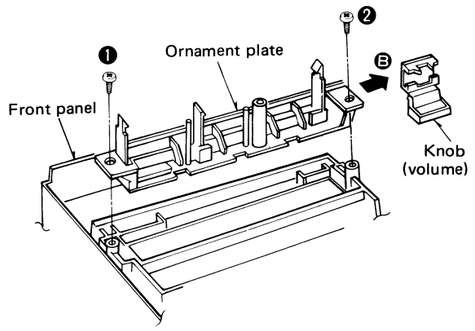
Ref. No. 3	How to remove the front panel
Procedure 1 →3	• Remove the 5 setscrews. (❶ ~ ❺)



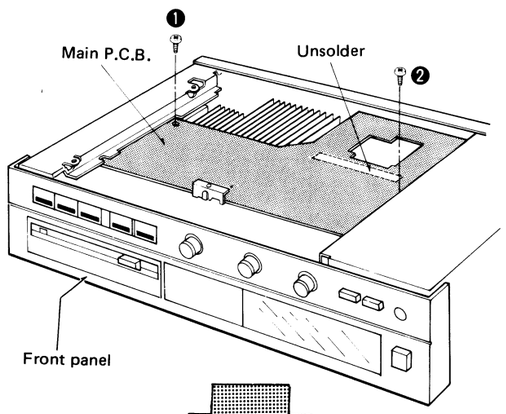
1. Push the 6 claws. (❻ , ❼)
2. Remove the front panel in the direction of the arrow Ⓐ .
3. Push the 1 claw. (❽)



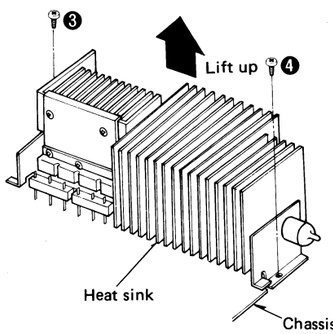
Ref. No. 4	How to remove the volume knob
Procedure 1 →3 →4	1. Remove the 2 setscrews. (❶ , ❷) 2. Remove the volume knob in the direction of the arrow Ⓑ



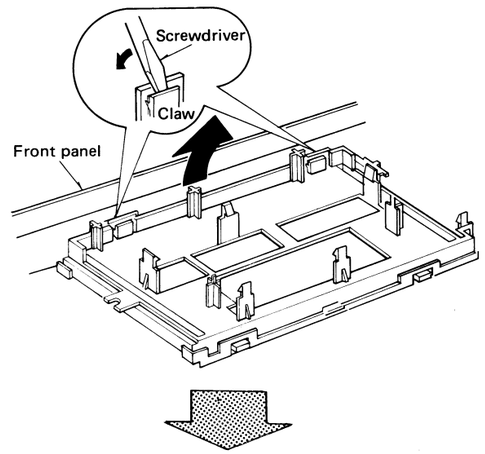
Ref. No. 6	How to remove the power transistor
Procedure 1 →2 →6	1. Remove the 2 setscrews. (❶ , ❷) 2. Unsolder of the power transistor.



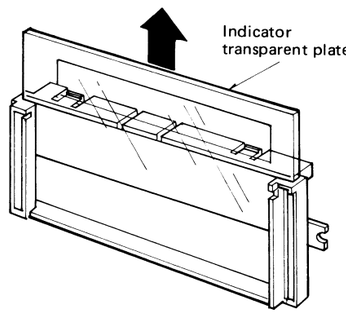
1. Remove the 2 setscrews. (❸ , ❹)
2. Remove the heat-sink from the chassis.



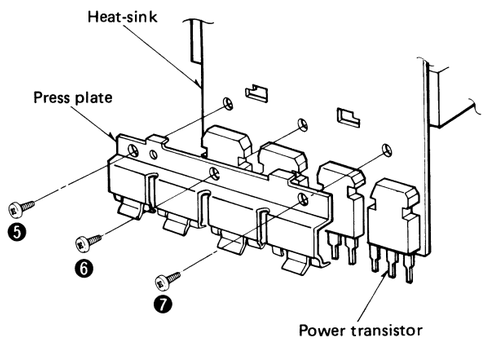
Ref. No. 5	How to remove the indicator transparent plate
Procedure 1 →3 →5	● Push the 2 claws.



● Detach the indicator transparent plate.

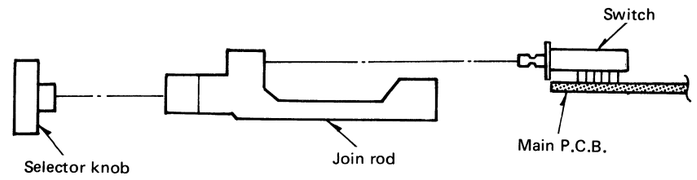


● Remove the 3 setscrews. (❺ ~ ❼)



When mounting the power transistor, apply silicone compound (SZZ0L15) to the rear side of power transistor, press plate and heat sink.

Ref. No. 7	How to remove the selector knob
Procedure 1 →3 →7	● Detach the selector knob and join rod from switch.



■ MEASUREMENTS AND ADJUSTMENTS

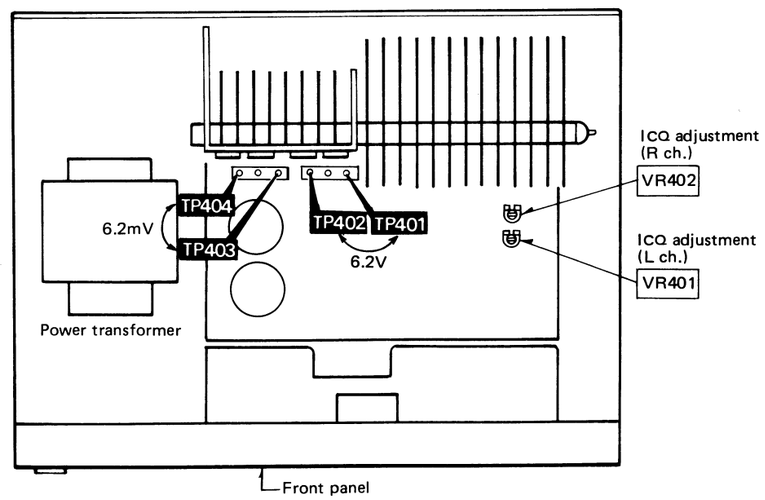
1. Idling (ICQ) Adjustment (after reparing the main amp.) [Fig. 1]

(1) After the repair, set the sound volume to maximal before turning on the power switch, and connect nothing to the speaker terminals.
(2) Completely turn ICQ control (VR401, VR402) counter-clockwise.
(3) Increase the voltage applied to the amplifier gradually from 0V by means of a power supply voltage controller, and make sure of the value in the Figure on page 4 before starting the adjustment.
(4) Connect the DC electronic voltmeter to TP401 (+) and TP402 (–) (L ch) or TP403 (+) and TP404 (–) (R ch).
(5) Adjust VR401 (L ch) or VR402 (R ch) so that the Voltage is 6.2mV about 5 minute. after power switch "on".

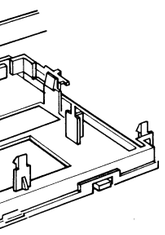
2. Check of Muting Circuit During Power "on"–"off" Operation. [Fig. 2]

(1) Connect 8Ω load and AC voltmeter to the speaker terminal.
(2) Set the input level adjustment to the maximal position.
(3) Apply 1kHz sine wave, 0.1V to the speaker terminal.
(4) Make sure that output is delivered about 3 ~ 5 sec. after turning the power switch "on".
(5) Output should Immediately be gone when power switch is turned "off".

● Adjustment point

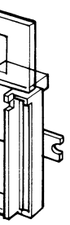


ndicator

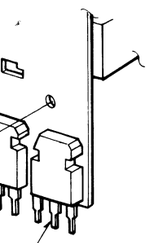


rent plate.

ator
parent plate



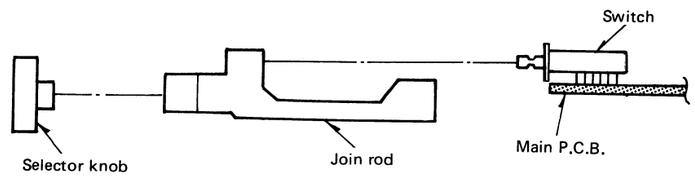
~ ❼)



r transistor

compound (SZZ0L15)
eat sink.

Ref. No. 7	How to remove the selector knob
Procedure 1 →3 →7	● Detach the selector knob and join rod from switch.



■ MEASUREMENTS AND ADJUSTMENTS

1. Idling (ICQ) Adjustment (after reparing the main amp.) [Fig. 1]

(1) After the repair, set the sound volume to maximal before turning on the power switch, and connect nothing to the speaker terminals.
(2) Completely turn ICQ control (VR401, VR402) counter-clockwise.
(3) Increase the voltage applied to the amplifier gradually from 0V by means of a power supply voltage controller, and make sure of the value in the Figure on page 4 before starting the adjustment.
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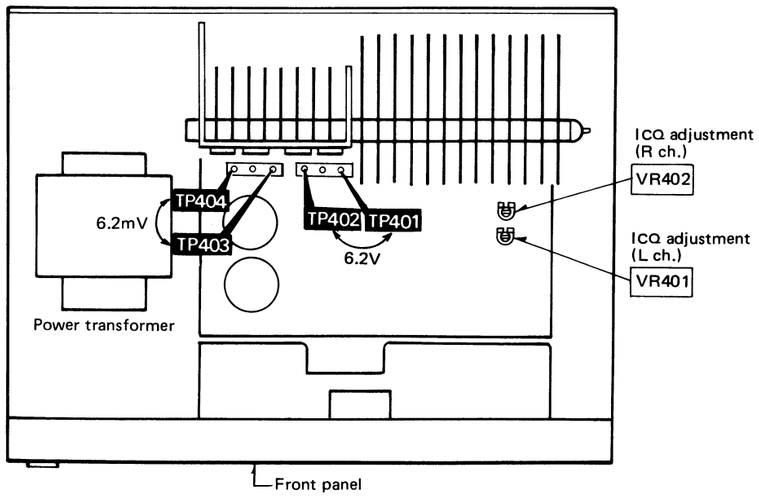
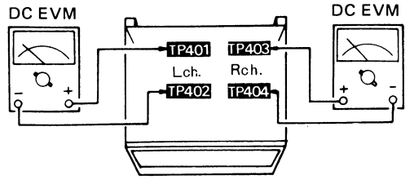
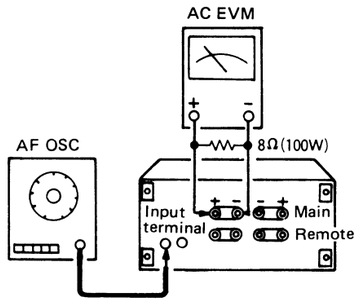
● **Adjustment point**



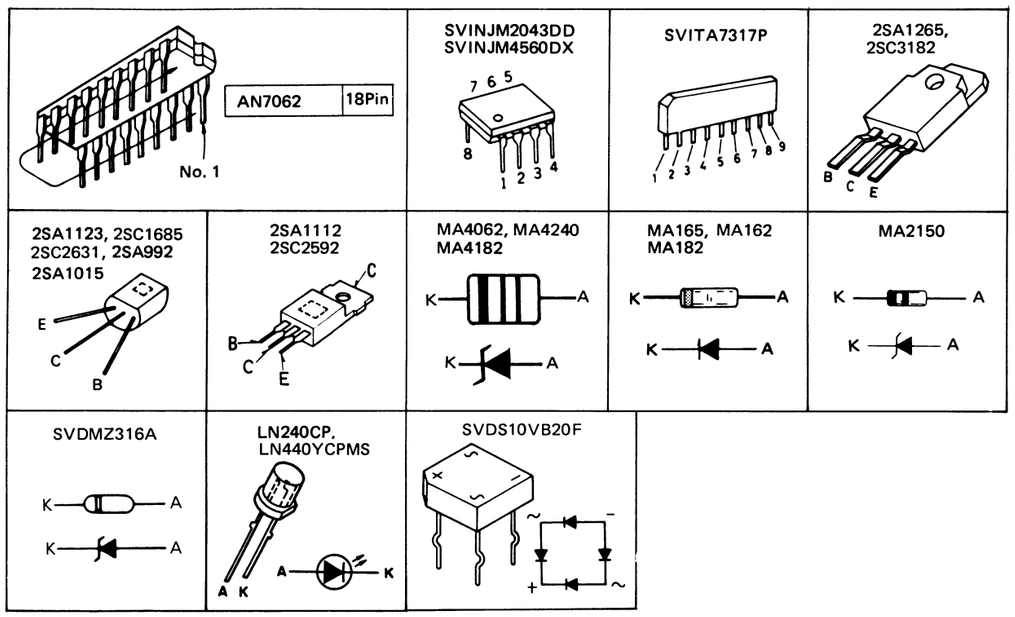


[Fig. 1] Idling (ICQ) Adjustment



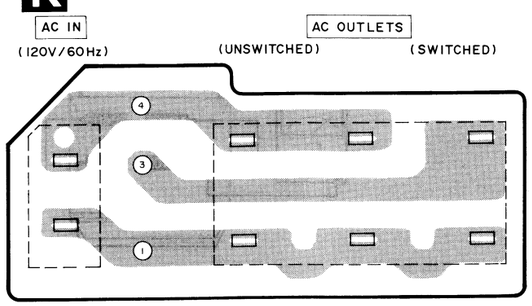
[Fig. 2] Check of muting circuit during power "on"–"off" operation

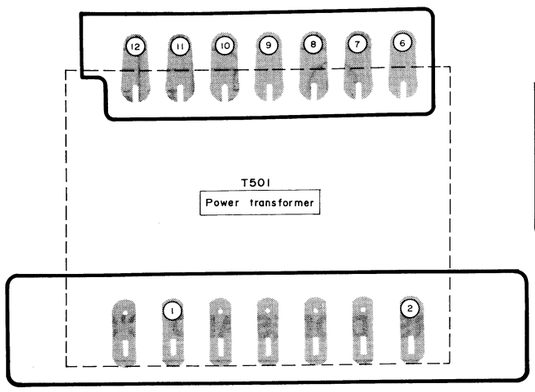
■ TERMINAL GUIDE OF TRANSISTORS, DIODES AND IC'S



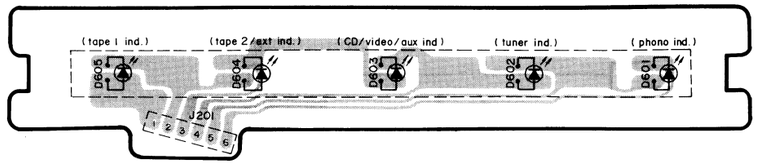
■ PRINTED CIRCUIT BOARDS

K





F INPUT SELECT INDICATOR P.C.B.



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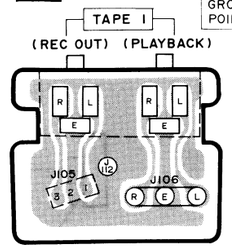
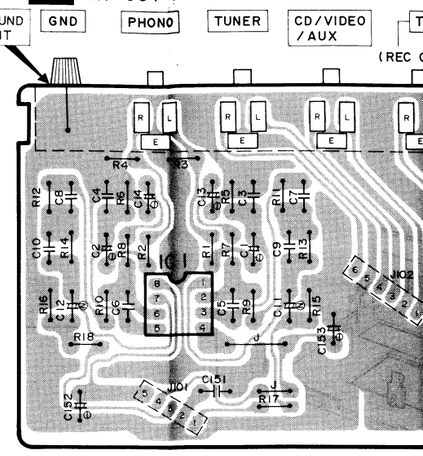


A PHONO EQUALIZER / IN-OUT TERMINAL P.C.B.



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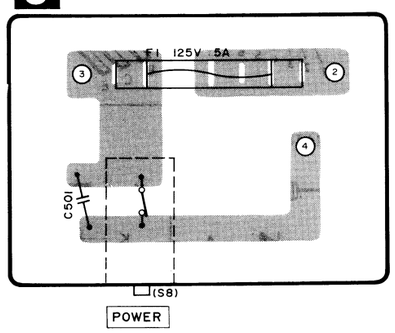
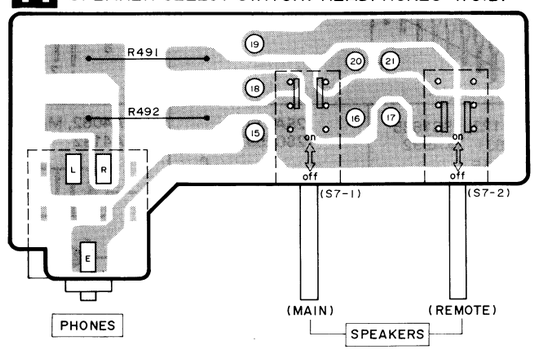
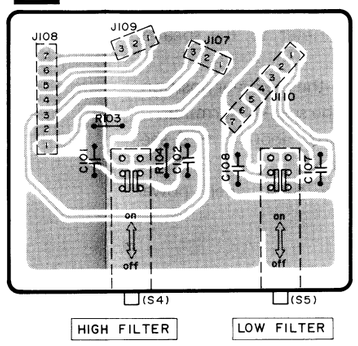


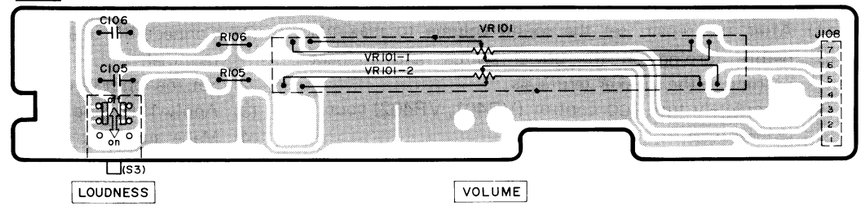
H SPEAKER SELECT SWITCH / HEADPHONES P.C.B.



D HIGH-LOW CUT FILTER SWITCH P.C.B.



E VOLUME / LOUDNESS P.C.B.



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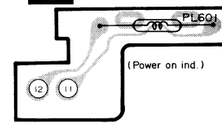
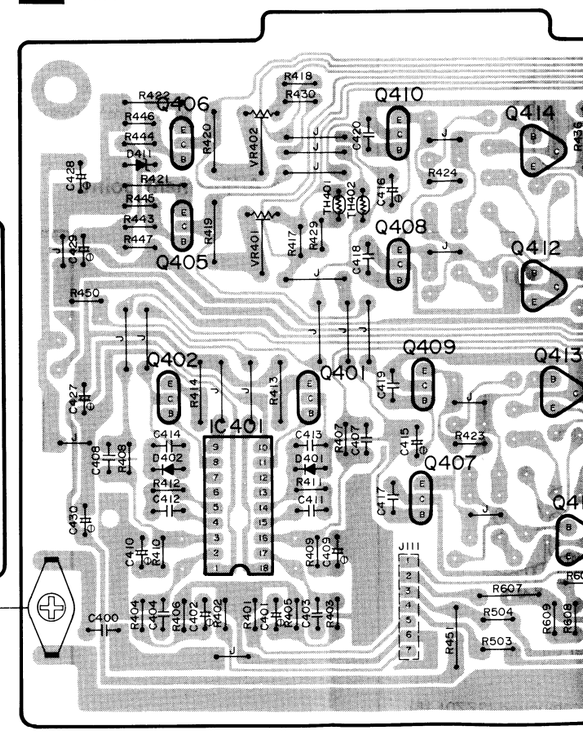
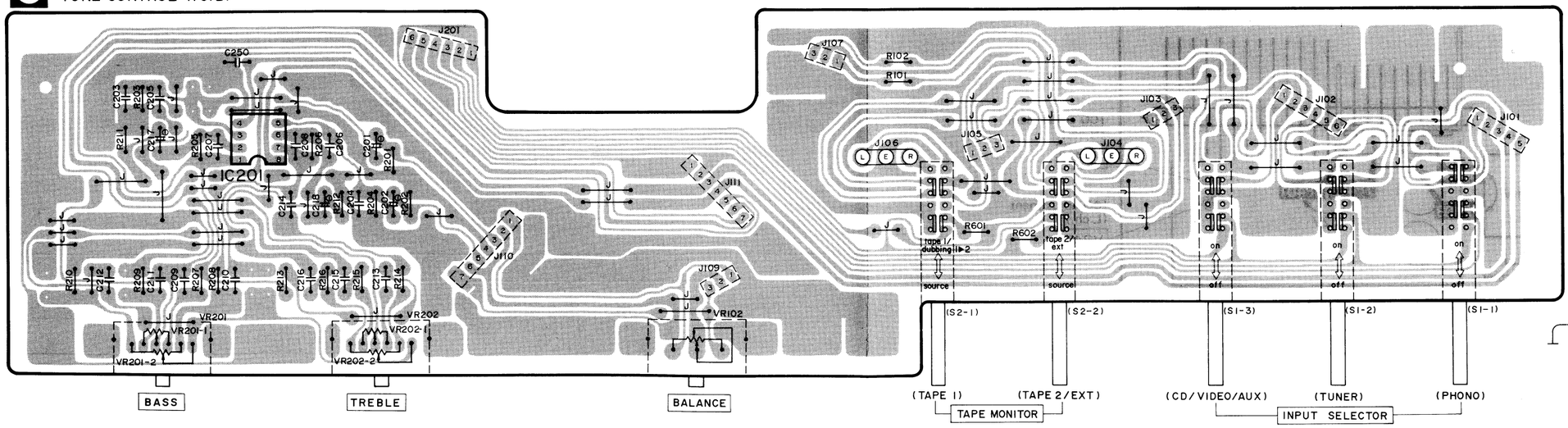


G VOLTAGE AMP. / POWER AMP. / SPEAKER PROTECTION / MUTING / POWER SUPPLY P.C.B.



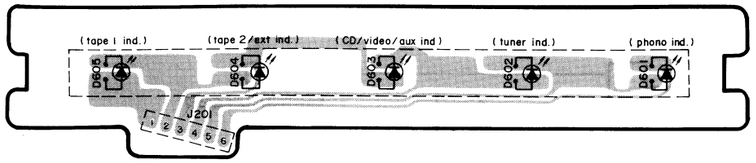
C INPUT/ TAPE MONITOR SELECT / TONE CONTROL P.C.B.



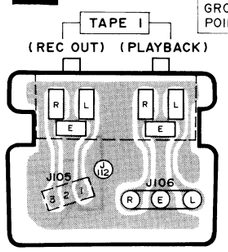
ETS

(SWITCHED)

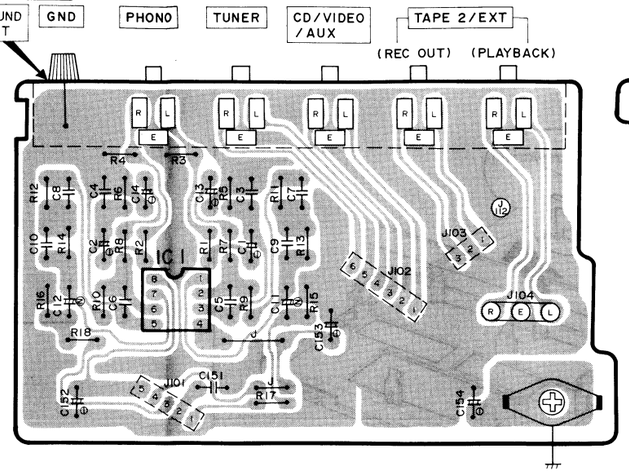
F INPUT SELECT INDICATOR P.C.B.

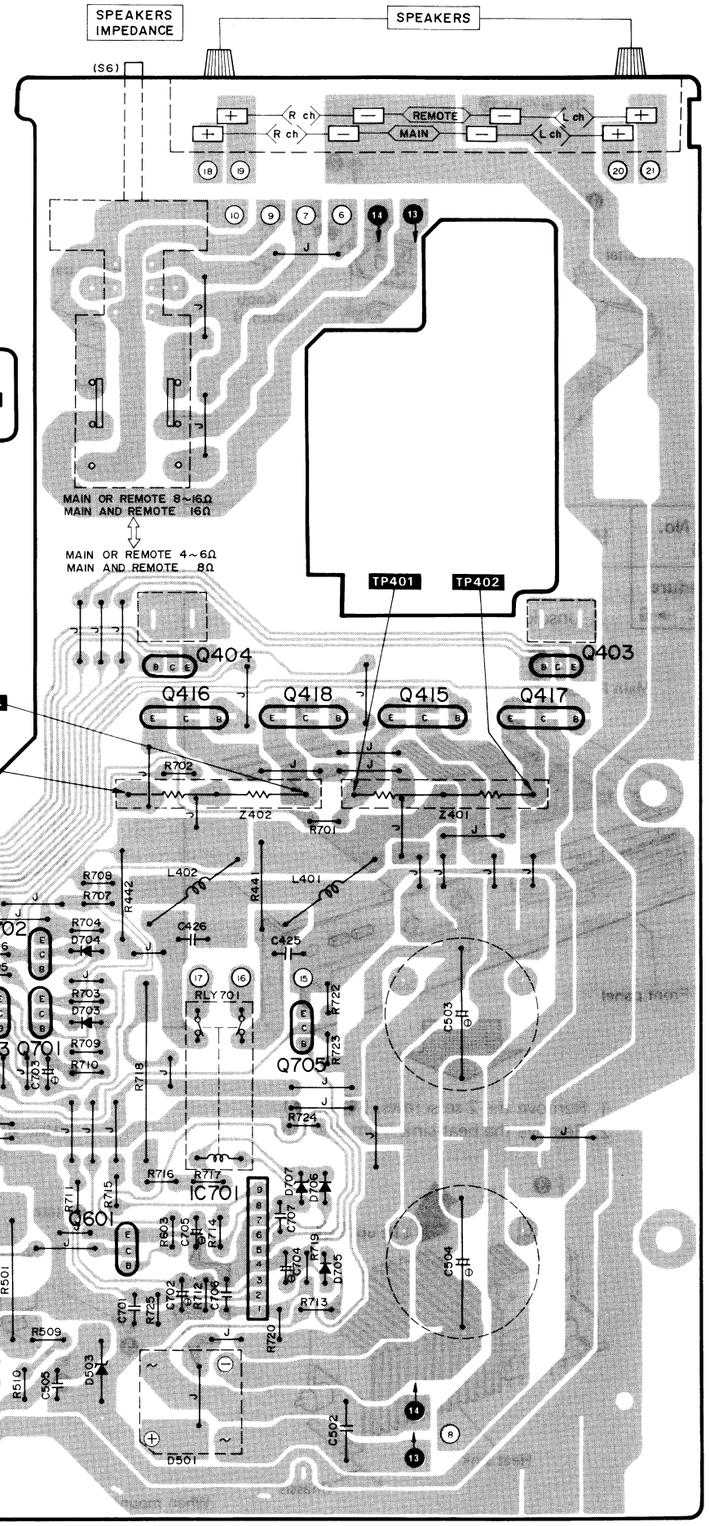


B

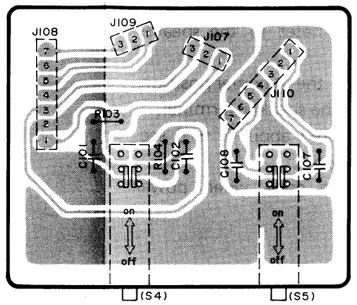


A PHONO EQUALIZER / IN-OUT TERMINAL P.C.B.

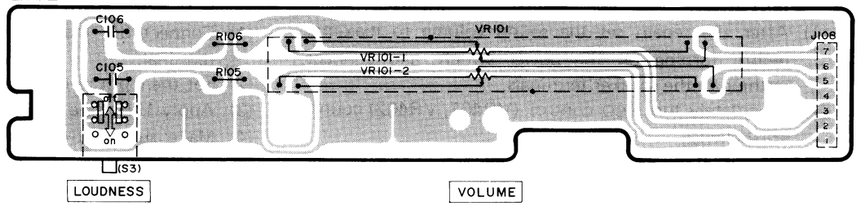




D HIGH-LOW CUT FILTER SWITCH P.C.B.



E VOLUME / LOUDNESS P.C.B.



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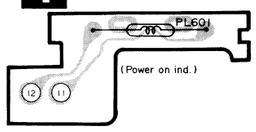
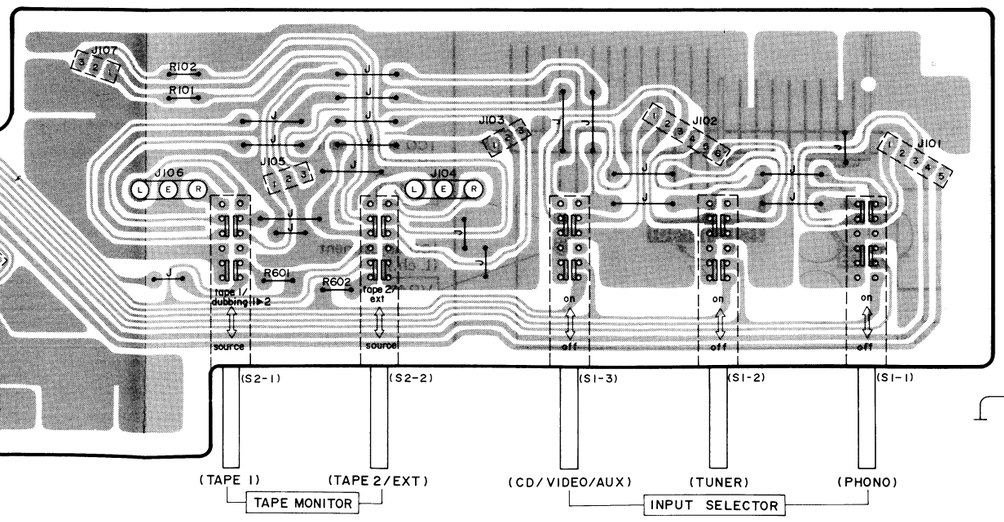
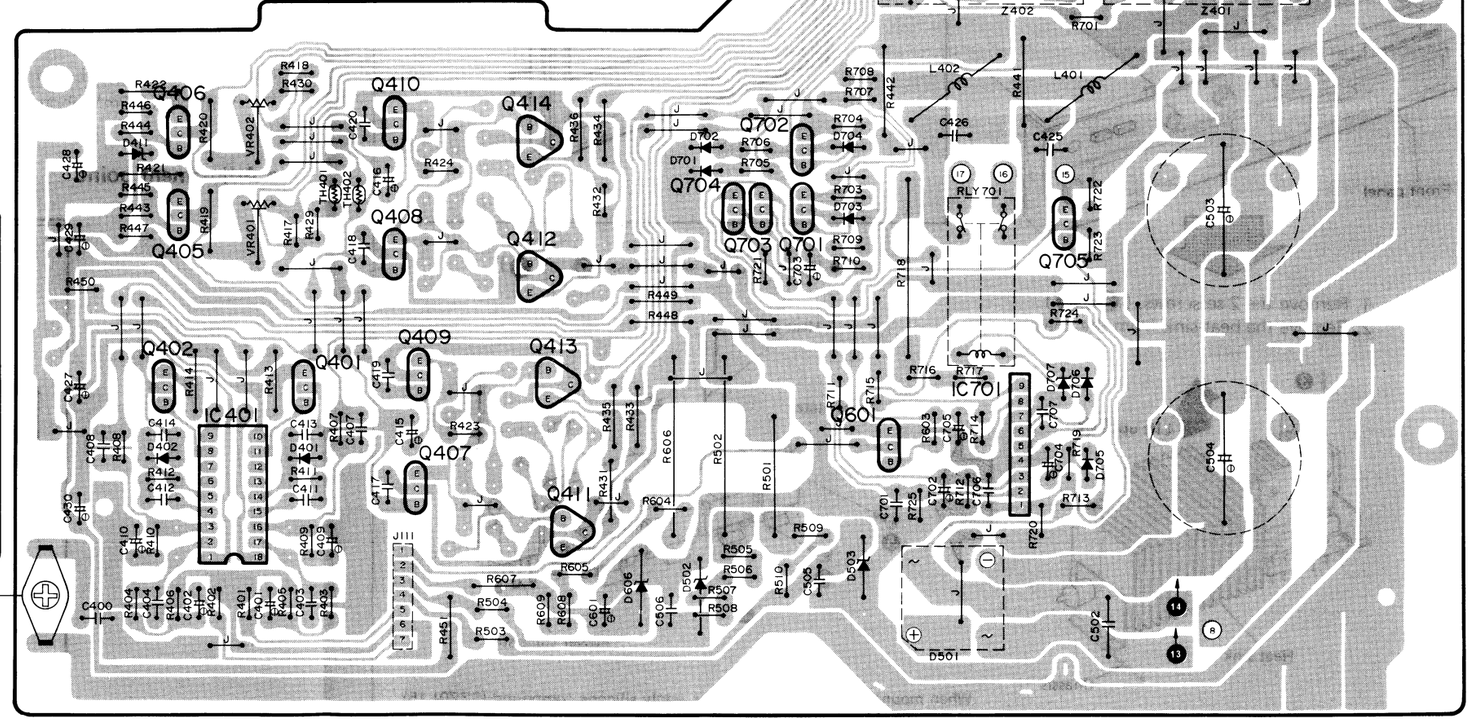
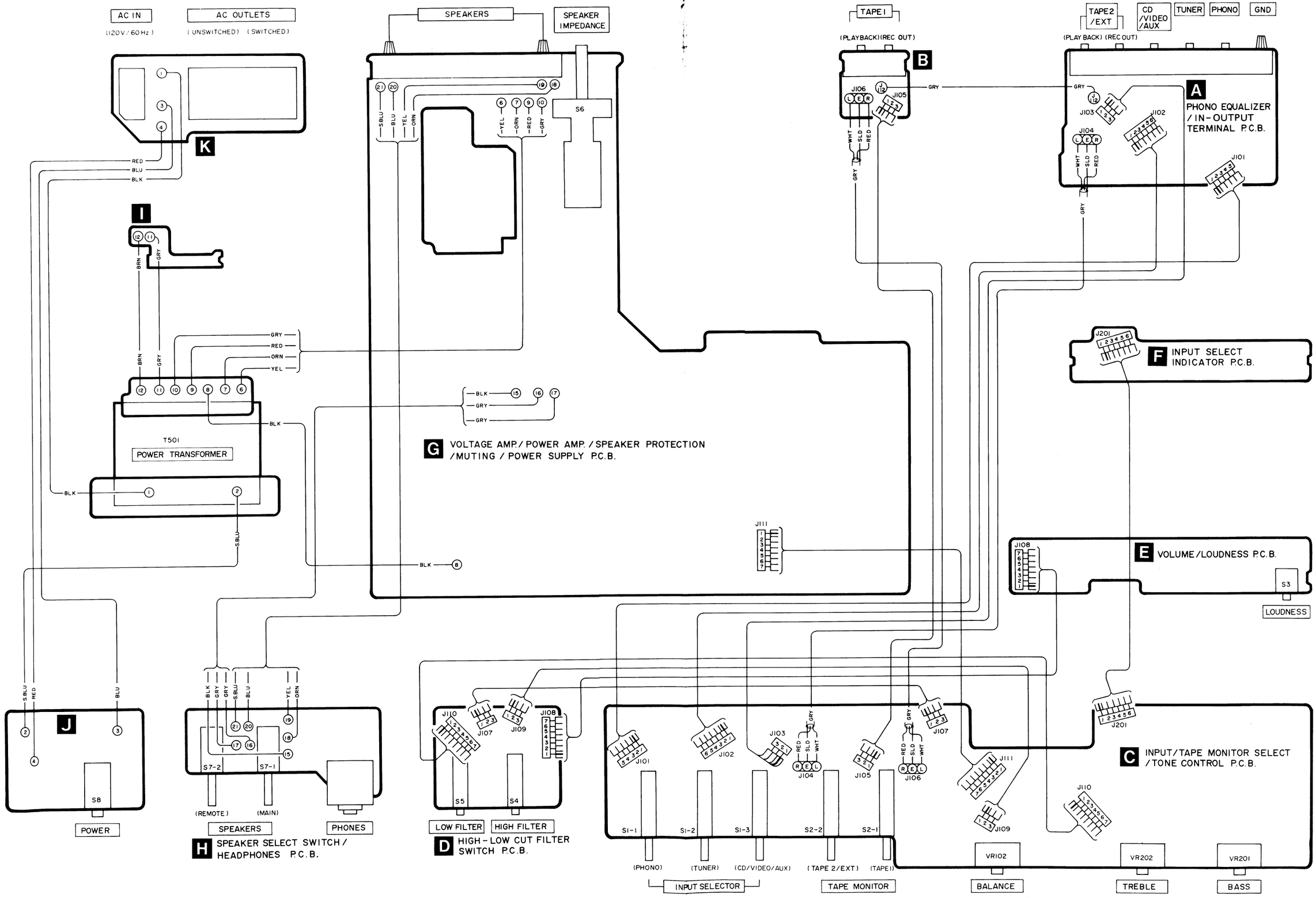


G VOLTAGE AMP. / POWER AMP. / SPEAKER PROTECTION / MUTING / POWER SUPPLY P.C.B.



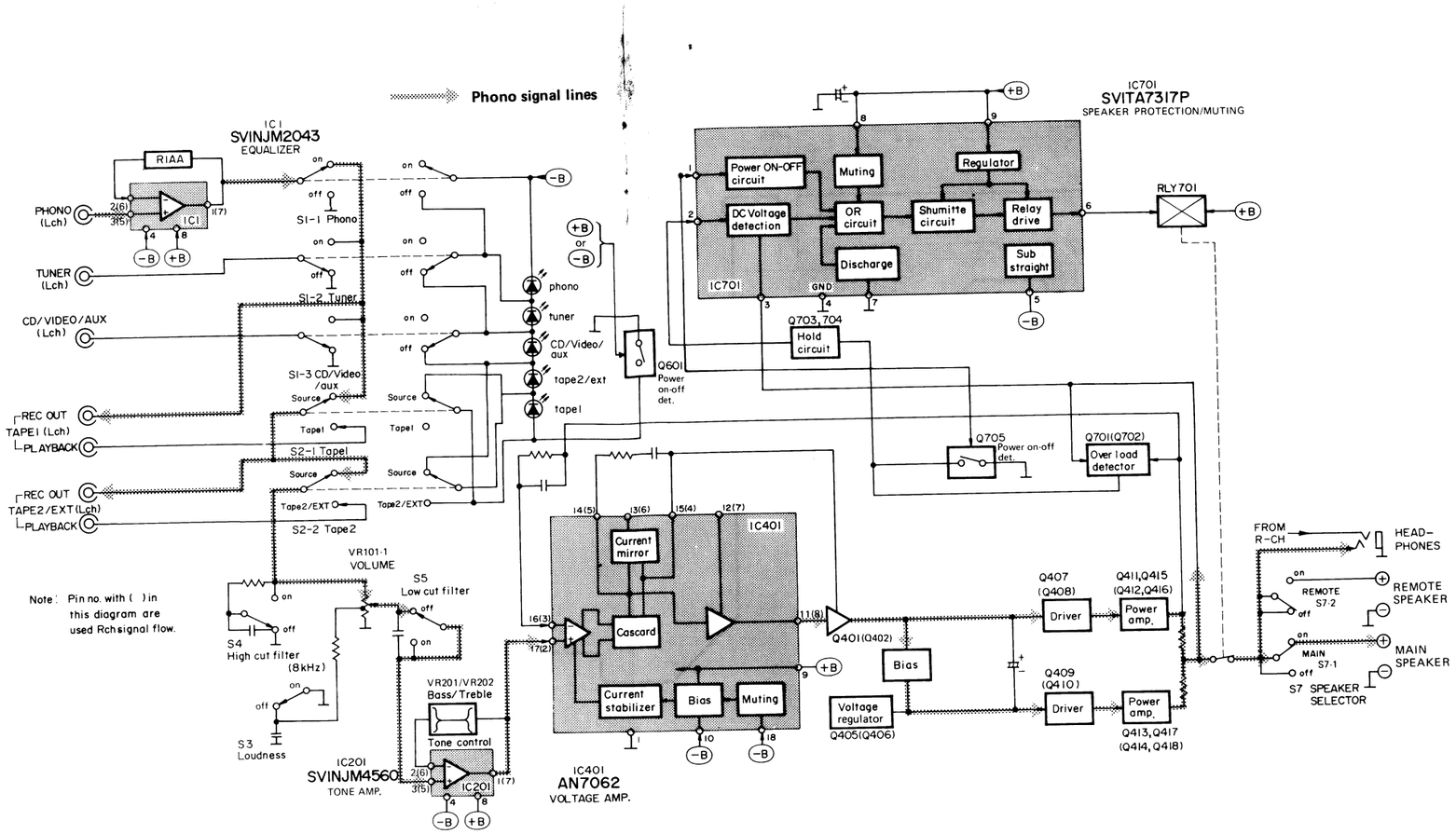


■ WIRING CONNECTION DIAGRAM (Top View)



SU-Z800

■ BLOCK DIAGRAM



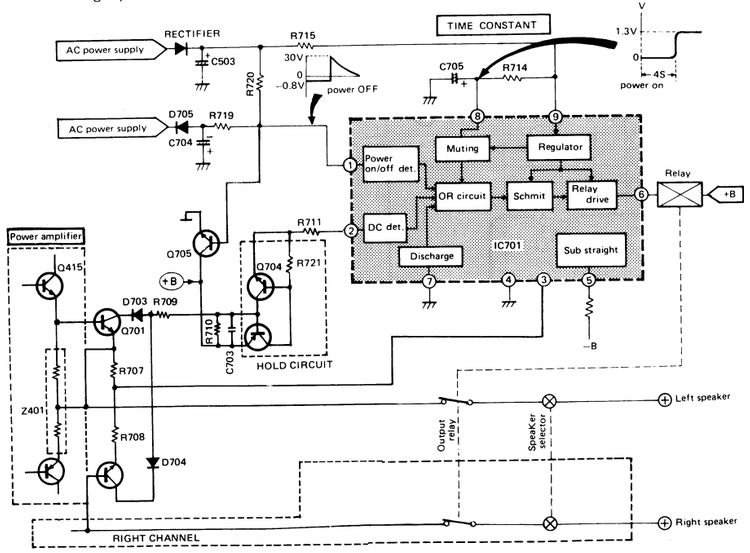
■ DISCRIPTION OF MUTING/RELAY DRIVE IC (SVITA7317P)

TECHNICAL GUIDE

Protection circuit (IC701 SVITA7317P)

IC601 serves as both protection and muting circuits.

- Protection of power amplifier transistor against overload.
- DC protection of speakers from being damaged when there is a short.
- Muting operation until circuit operation is stabilized after power switch turned ON.
- Muting operation to eliminate noise when power switch is turned OFF.



1. Protection of power amplifier against overload

(1) If excessive power is penetrated with a load less than the rating connected to speaker terminals or the speaker terminals are short-circuited, a voltage a large current flow then Q701 turns on causeing the base voltage increasing of Q701.

(2) Q701 ON causes the hold circuit of Q703 and Q704 to turn ON, then the voltage at pin (2) of IC701 decreases.

(3) As the voltage at pin (2) of IC701 decreases, the voltage at pin (6) rises as well, and the output relay turns OFF.

NOTE: When the hold circuit is ON, the relay will not be reset even if the normal condition of the circuit is restored. In that case, turn off the power supply and turn it on again.

2. DC protection

(1) If DC is generated at the speaker terminal due to defective circuit, then DC will be applied to IC701 pin (2).

(2) The DC detection circuit of IC701 functions and the voltage at pin (6) rises, then the output relay turns OFF.

3. Muting circuit with power ON

(1) With power turns ON, positive (+) voltage supply to C705 through R715 and R714.

(2) When the voltage across C705 (i.e. voltage at IC701 pin (8)) gradually rises up to about 1.3 V, the voltage at pin (6) drops and then the output relay turns ON.

NOTE: The time required for voltage rise at pin (8) depends upon the time constant of R714 and C704.

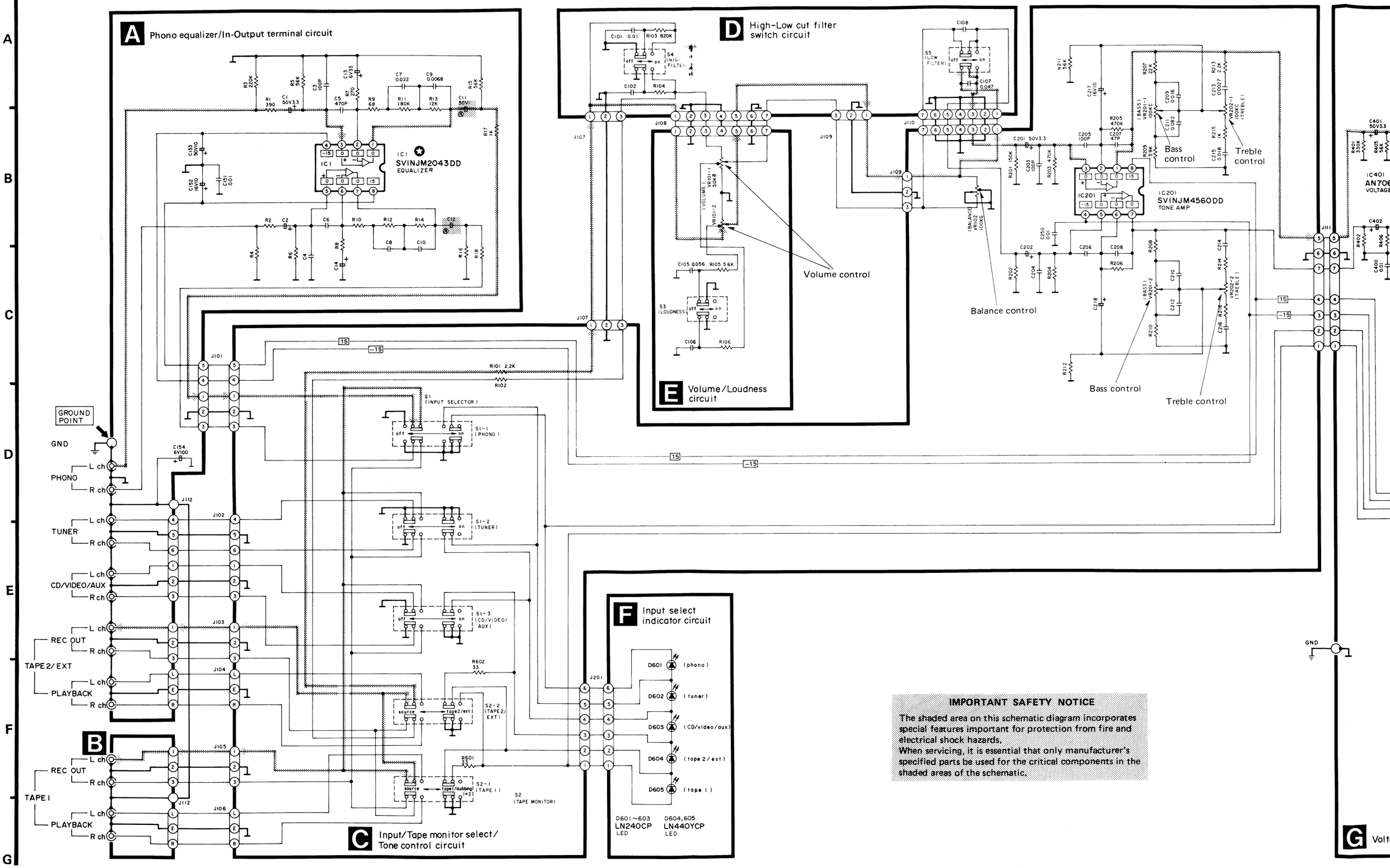
4. Muting circuit with power OFF

(1) Voltages from power supply circuit (C503, R720) of large time constant and from power supply circuit (C704, R719) of small time constant are applied to pin (1) of IC701, which is usually about –0.8V.

(2) When power turns OFF, the negative (–) voltage of small time constant lowers, but the positive (+) voltage of large time constant will not immediately drop. Accordingly, the voltage at IC701 pin (1) rises.

(3) As the voltage at pin (1) rises, the voltage at pin (6) rises as well, causing the output relay to turn OFF.

*Relay is immediately turned OFF with power OFF, therefore there is no circuit noise trouble due to voltage drop.



IMPORTANT SAFETY NOTICE

The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
When servicing, it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

● The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement part list.

Notes:

1. **S1–1 ~ S1–3** : Input selector switch in "**phono**" position. (S1–1: phono S1–2: tuner S1–3: DC/video/aux)
2. **S2–1** : Tape monitor (tape 1) switch in **"source"** position. (▮ source , ▂ tape 1/dubbing 1 ▶ 2)
3. **S2–2** : Tape monitor(tape 2) switch in **"source"** position. (▮ source, ▂ tape 2/ext)
4. **S3** : Loudness switch in "**off**" position. (▮ off, ▂ on)
5. **S4** : High filter switch in **"off"** position. (▮ off, ▂ on)
6. **S5** : Low filter switch in **"off"** position. (▮ off, ▂ on)
7. **S6** : Speaker impedance selector switch in "8Ω/4 ~ 16Ω" position.
   (main and remote 8Ω / main or remote 4 ~ 6Ω ↔ main and remote 16Ω / main or remote 8 ~ 16Ω)
8. **S7–1** : Main speaker selector switch in "**on**" position. (▮ off, ▂ on)
9. **S7–2** : Remote speaker selector switch in **"on"** position. (▮ off, ▂ on)
10. **S8** : Power source switch in "**on**" position. (▮ off, ▂ on)
11. ▭ indicated voltage values are the standard values for the DC electronic circuit tester (high impedance) with the ground point taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester. [high tap ⟶ 16Ω/8 ~ 16Ω]
12. Figures in ( )stand for DC voltage in low tap. [8Ω/4 ~ 16Ω]
13. ▒▒▒ Phono signal lines
14. ——— Positive (+B) voltage lines or negative (–B) voltage lines.

G Voltage amp./Power amp./Speaker protection/Muting/Power supply circuit

H Speaker selector switch Headphones circuit

I

J

K

■ RESISTORS & CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The unit of resistance is Ω (ohm). K = 1000Ω, M = 1000kΩ.
5. The unit of capacitance is μF (microfarad). P = 10^{-6} μF.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value
ERG	2	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon	2F : 1/4W	J : ± 5%
ERG : Metal Oxide	S2 : 1/4W	G : ± 2%
	25 : 1/4W	
	S1 : 1/2W	
	1 : 1W	
	2 : 2W	
	3 : 3W	

Numbering System of Capacitor

Example

ECKD	1H	103	Z	F	ECEA	50	M	R47	R
Type	Voltage	Value	Tolerance	Peculiarity	Type	Voltage	Peculiarity use	Value	Special use

Capacitor Type	Voltage: ECEA Type	Voltage: Others	Tolerance
ECEA : Electrolytic	0J : 6.3V	1H : 50V DC	C : ± 0.25pF
ECEA...N : Non Polar Electrolytic	1A : 10V	KC : 125V AC	K : ± 10%
ECCD : Ceramic	1C : 16V	2H : 500V DC	Z : +80%, −20%
ECKD : Ceramic	1E : 25V		P : +100%, −0%
ECQM : Polyester	1H : 50V		
ECET : Electrolytic	71 : 71V		
	2A : 100V		

Ref. No.	Part No.	Value
RESISTORS		
R1, 2	ERDS2TJ391	390
R3, 4	ERDS2TJ224	220K
R5, 6	ERDS2TJ563	56K
R7, 8	ERDS2TJ271	270
R9, 10	ERDS2TJ680	68
R11, 12	ERDS2TJ184	180K
R13, 14	ERDS2TJ123	12K
R15, 16	ERDS2TJ563	56K
R17, 18	ERDS2TJ102	1K
R101, 102	ERDS2TJ222	2.2K
R103, 104	ERDS2TJ824	820K
R105, 106	ERDS2TJ562	5.6K
R201, 202	ERDS2TJ154	150K
R203, 204	ERDS2TJ474	470K
R205, 206	ERDS2TJ474	470K
R207, 208	ERDS2TJ223	22K
R209, 210	ERDS2TJ392	3.9K
R211, 212	ERDS2TJ563	56K
R213, 214	ERDS2TJ222	2.2K
R215, 216	ERDS2TJ102	1K
R401, 402	ERDS2TJ334	330K
R403, 404	ERDS2TJ102	1K
R405, 406	ERDS2TJ563	56K
R407, 408	ERDS2TJ563	56K
R409, 410	ERDS2TJ182	1.8K
R411, 412	ERDS2TJ121	120
R413, 414 ⚠Ⓢ	ERD25FJ220	22
R417, 418	ERDS2TJ562	5.6K
R419, 420 ⚠Ⓢ	ERD25FJ821	820
R421, 422 ⚠Ⓢ	ERD25FJ470	47
R423, 424	ERDS2TJ182	1.8K
R429, 430	ERDS2TJ183	18K
R431, 432 ⚠Ⓢ	ERD25FJ331	330
R433, 434 ⚠Ⓢ	ERD25FJ2R2	2.2
R435, 436 ⚠Ⓢ	ERD25FJ2R2	2.2
R441, 442 ⚠	ERG1ANJ100	10
R443, 444 ⚠	ERDS2TJ332	3.3K
R445, 446 ⚠	ERDS2TJ471	470

Ref. No.	Part No.	Value
R447 ⚠	ERDS2TJ562	5.6K
R448 ⚠	ERD2FCG470	47
R449 ⚠Ⓢ	ERD25FJ470	47
R450	ERDS2TJ563	56K
R451 ⚠Ⓢ	ERD25FJ470	47
R491, 492 ⚠	ERG2ANJ331	330
R501 ⚠	ERG2ANJ122	1.2K
R502 ⚠	ERG3ANJ561	560
R503, 504	ERDS2TJ820	82
R505, 506	ERDS2TJ151	150
R507, 508	ERDS2TJ151	150
R509, 510	ERDS2TJ391	390
R601, 602	ERDS2TJ330	33
R603	ERDS2TJ472	4.7K
R604, 605	ERDS2TJ181	180
R606 ⚠	ERG3ANJ561	560
R607 ⚠	ERDS1FJ471	470
R608, 609	ERDS2TJ181	180
R701, 702	ERDS2TJ331	330
R703, 704	ERDS2TJ331	330
R705, 706	ERDS2TJ272	2.7K
R707	ERDS2TJ124	120K
R708	ERDS2TJ154	150K
R709, 710	ERDS2TJ103	10K
R711, 712	ERDS2TJ473	47K
R713 ⚠	ERDS2TJ153	15K
R714	ERDS2TJ184	180K
R715 ⚠	ERDS2TJ153	15K
R716, 717	ERDS2TJ101	100
R718 ⚠	ERG3ANJ681	680
R719	ERDS2TJ822	8.2K
R720 ⚠	ERDS2TJ224	220K
R721	ERDS2TJ103	10K
R722	ERDS2TJ183	18K
R723 ⚠	ERDS2TJ822	8.2K
R724 ⚠	ERDS2TJ153	15K
R725	ERDS2TJ103	10K

Ref. No.	Part No.	Value
CAPACITORS		
C1, 2	ECEA1HU3R3	3.3
C3, 4 Ⓢ	ECCD1H101K	100P
C5, 6 Ⓢ	ECKD1H471KB	470P
C7, 8	ECQM1H223JZ	0.022
C9, 10	ECQM1H682JZ	0.0068
C11, 12 ⚠	ECEA1HN010S	1
C13, 14	ECEA0JU330	33
C101, 102	ECQM1H103JZ	0.01
C105, 106	ECQM1H563JZ	0.056
C107, 108	ECQM1H473JZ	0.047
C151 Ⓢ	ECKD1H103ZF	0.01
C152	ECEA1CU100	10
C153	ECEA1HU00	10
C154	ECEA0JU101	100
C201, 202	ECEA1HU3R3	3.3
C203, 204 Ⓢ	ECCD1H101K	100P
C205, 206 Ⓢ	ECCD1H101K	100P
C207, 208 Ⓢ	ECCD1H470K	47P
C209, 210	ECQM1H183JZ	0.018
C211, 212	ECQM1H823JZ	0.082
C213, 214	ECQM1H272JZ	0.0027
C215, 216	ECQM1H183JZ	0.018
C217, 218	ECEA1CU100	10
C250 Ⓢ	ECKD1H103ZF	0.01
C400 Ⓢ	ECKD1H103ZF	0.01
C401, 402 Ⓢ	ECEA1HU3R3	3.3
C403, 404 Ⓢ	ECCD1H390K	39P
C407, 408 Ⓢ	ECCD1H070CC	7P
C409, 410	ECEA1CU330	33
C411, 412 Ⓢ	ECKD1H222ZF	0.0022
C413, 414 Ⓢ	ECCD2H070D	7P
C415, 416	ECEA1HU010	1
C417, 418 ⚠	ECCD2H820K	82P
C419, 420 ⚠	ECCD2H820K	82P
C425, 426 Ⓢ	ECKD1H223ZF	0.022
C427	ECEA2AU220	2.2
C428 ⚠	ECEA2AU100	10
C429 ⚠	ECEA1AU330	33

Ref. No.	Part No.	Value
C430	ECEA1HU100	10
C501 ⚠	ECKDKC103PE	0.01
C502 ⚠	ECKD2H103PE	0.01
C503, 504 ⚠	ECET71V123Z	12000
C505, 506 Ⓢ	ECKD1H103ZF	0.01
C601	ECEA1CU221	220
C701	ECKD1H152KB	0.0015
C702	ECEA1EU101	100
C703	ECEA1HU3R3	3.3
C704	ECEA1HU4R7	4.7
C705	ECEA0JU330	33
C706, 707 Ⓢ	ECKD1H103ZF	0.01

■ REPLACEMENT PARTS LIST

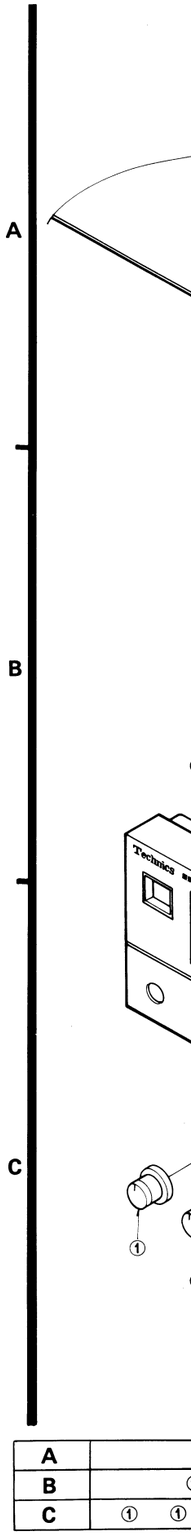
Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS		
IC1	SVINJM2043SE	Equalizer
IC201	SVINJM4560DD	Tone Amp.
IC401	AN7062	Voltage Amp.
IC701	SVITA7317P	Muting & Protection
TRANSISTORS		
Q401, 402, 409, 410	2SA1123-R	Voltage Amp., Pre Drive
Q403, 404, 704, 705	2SC1685-QNC	Bias Control, Hold, Power ON-OFF Detector
Q405~408, ⚠ 701, 702	2SC2631-R	Regulator, Pre Drive, Over Load Detector
Q411, 412 ⚠	2SC2592-R	Drive
Q413, 414 ⚠	2SA1112-R	Drive
Q415, 416 ⚠	2SC3182-R	Power Amp.
Q417, 418 ⚠	2SA1265-R	Power Amp.
Q601, 703	2SA1015Y	Power ON-OFF Detector, Hold
DIODES		
D401, 402	MA182	Bias
D411 ⚠	MA4062-M	6.2V, Zener
D501 ⚠	SVDS10VB20F	Rectifier
D502	MA2150B	15V, Zener
D503, 606	SVDMZ316A	16V, Zener
D601~603	LN240CP	L.E.D.
D604, 605	LN440YCP	L.E.D.
D701~705 Ⓢ	MA162A	Switching
D706	MA165	Switching
D707	MA4240M	24V, Zener
COILS		
L401, 402	SLQY18G-10	Choke
TRANSFORMER		
T501 ⚠	SLT5P236	Power Source
VARIABLE RESISTORS		
VR101	EWAQA8X05B54	Volume, 50kΩ (B)
VR102	EWHF5A20G15	Balance, 100kΩ (G)
VR201, 202	EWCS6A020C15	Tone Control, 100kΩ (C)
VR401, 402	EVNK6AA00B52	Ico Adj., 500Ω (B)
THERMISTERS		
TH401, 402	ERTD2ZHL103S	10kΩ
RELAY		
RLY701	SSY126	Speaker Protection
COMPONENT COMBINATIONS		
Z401, 402	ERF3GBKR22N	0.22Ω (x2)
LAMP		
PL601 ⚠	XAMS6Q8C	Power Ind.
FUSE		
F1 ⚠	XBA1F50N14	125V, 5A
SWITCHES		
S1	SSH3074	Input Selector
S2	SSH2084	Tape Monitor
S3	SSH1145	Loudness
S4, 5	SSH2085	Filter
S6 ⚠	SSH1157	Impedance
S7	SSH2086	Speaker Selector
S8 ⚠	SSH1109	Power Source

Ref. No.	Part No.	Part Name & Description
CABINET and CHASSIS PARTS		
1	SBN1153	Knob, Tone Control, Balance (3)
2	SGWUZ800-KM	Front Panel, Ass'y (1)
3	SMZ317-1	Reflector Plate (1)
4	SMX856	Insulation Plate (1)
5	SGXUZ800-KM	Case (1)
6	SGU420-1	Transparent Cover (1)
7	SKC1130BB1	Cabinet (1)
8	SBC666	Button, Power Switch (1)
9	SHW47L30	Spacer, Button (4)
10	SBC439	Button, Speaker, Filter (4)
11	SBDUZ600-KM	Button, Volume (1)
12	SGXUZ600-KM1	Ornament, Volume knob (1)
13	SBC662D	Button, (Tape 1) (1)
14	SBC662E	Button, (Tape 2) (1)
15	SBC662F	Button, (Aux) (1)
16	SBC662G	Button, (Tuner) (1)
17	SBC662H	Button, (Phono) (1)
18	SUB199	Connection Rod, Button (5)
19	SKU8990-3	Bottom Board (1)
20	SKL249	Foot (4)
21	SUW1995-3	Bracket (1)
22	SBC571-4T	Button, Loudness (1)
23	SMN1847	Bracket (1)
24	SMP378	Case, L.E.D. (1)
25	SHG6309-1	Rubber, Power Transformer (2)
26	SUW2083	Bracket, Power Transistor (1)
27	SMX767	Spacer, Power Transistor (2)
28 ⚠	SJS9231B	Socket, AC Inlet (1)
29 ⚠	SJS9328B	Socket, AC Outlet (1)
30	SML107-9	Bracket, Power Transformer (1)
31	SJF4815-1	Terminal Board, Speaker (1)
32	SJF3057N	Terminal Board (1)
33	SBC165	Button, Impedance Selector Switch (1)
34	SJF3059-15N	Terminal Board (1)
35	SGPUZ800-KM	Rear Panel (1)
36 ⚠	SJS9231A	Socket Cover, AC Inlet (1)
37 ⚠	SJS9328A	Socket Cover, AC Outlet (1)
38	SJT345	Holder, Fuse (2)
39	SJJ63B	Jack, Headphones (1)
40	SJS5707	Socket (1)
41	SHR301	Clamper (5)
SCREWS		
N1	XTBS3+8BFZ1	Tapping with Detent, ⊕ 3 x 8 (21)

Ref. No.	Part No.	Part Name & Description
N2	XTB3+8G	Tapping, ⊕ 3 x 8 (4)
N3	XSN3+6S	⊕ 3 x 6 (7)
N4	SNE2095-5	(4)
N5	XTW3+8J	Tapping, ⊕ 3 x 8 (3)
N6	XTW3+10H	Tapping, ⊕ 3 x 10 (4)
N7	XTB4+10F	Tapping, ⊕ 4 x 10 (4)
N8	XSN3+10S	⊕ 3 x 10 (1)
N9	XTW3+8H	Tapping, ⊕ 3 x 8 (4)
N10	XTBS3+8BFYR1	Tapping with Detent, ⊕ 3 x 8 (4)
N11	XTS3+8B	Tapping, ⊕ 3 x 8 (1)
WASHER		
N20	XWA3B	Spring, φ3 (8)
NUTS		
N30	XNS12	φ12 (1)
N31	SNE4021	(3)
ACCESSORIES		
A1 ⚠	SJA170	AC Cord (1)
A2	SQF12201	Instruction Book (1)
PACKING PARTS		
P1	SPP723	Polyethylene Bag (1)
P2	SPS3023-4	Pad, Left Side (1)
P3	SPS3025-2	Pad, Right Side (1)
P4	SPG4974	Carton Box (1)

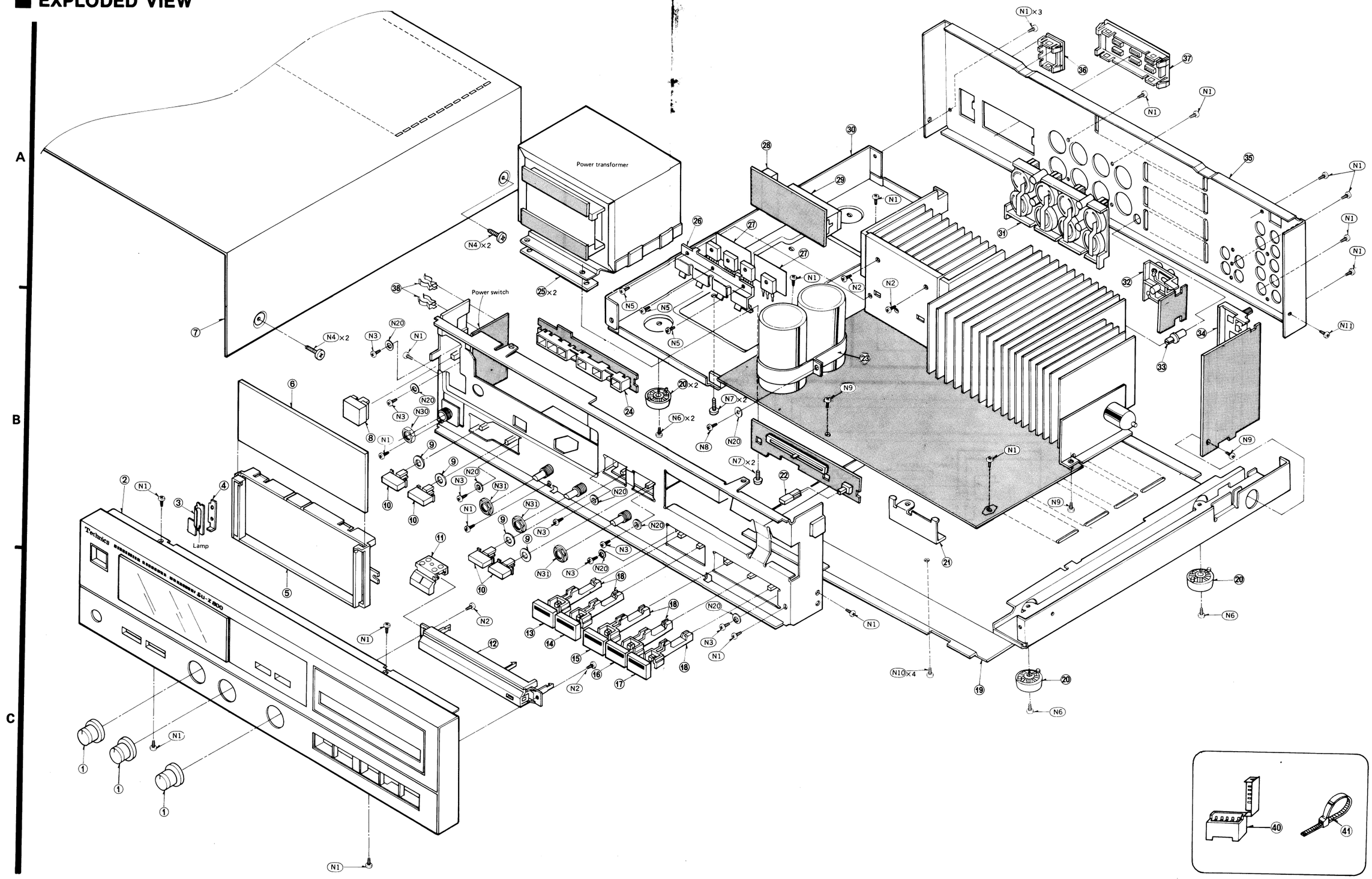
■ EXPLODED



A	
B	
C	① ①

■ EXPLODED VIEW

	Part Name & Description	
	Tapping, ⊕ 3 x 8	(4)
	⊕ 3 x 6	(7)
		(4)
	Tapping, ⊕ 3 x 8	(3)
	Tapping, ⊕ 3 x 10	(4)
	Tapping, ⊕ 4 x 10	(4)
	⊕ 3 x 10	(1)
	Tapping, ⊕ 3 x 8	(4)
1	Tapping with Detent, ⊕ 3 x 8	(4)
	Tapping, ⊕ 3 x 8	(1)
	Spring, ϕ3	(8)
	ϕ12	(1)
		(3)
	AC Cord	(1)
	Instruction Book	(1)
	Polyethylene Bag	(1)
	Pad, Left Side	(1)
	Pad, Right Side	(1)
	Carton Box	(1)



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